

a part comprising a plurality of respective multiplicities of machine-detectable marks arranged in accordance with two-dimensional redundant bit patterns, each of said respective multiplicities of machine-detectable marks having an appearance to human vision resembling a respective character, and said two-dimensional redundant bit patterns comprising a repeating pattern of a bit string forming respective codes corresponding to said respective character;

an imager for imaging an area of said part occupied by said marks to produce electrical signals having characteristics which allow discrimination between electrical signals derived from imaging of marks and electrical signals derived from imaging of areas outside of marks; and

a computer programmed to derive said codes from said electrical signals output by said imager.

REMARKS

The Office action dated January 7, 2003 and the cited references have been carefully considered.

Claims 1-5, 7-10 and 12-20 are pending. Claim 12 is rejected under 35 U.S.C. § 112, second paragraph. Claims 1-5, 7-10 and 12-10 are rejected under 35 U.S.C. § 102(e) as being anticipated by Behrens (US 6,434,340; hereinafter "Behrens"). The Applicant respectfully traverses these rejections for the reasons set forth below.

Claim Rejection Under 35 U.S.C. § 112, second paragraph

Claim 12

Claim 12 is rejected under 35 U.S.C. § 112, second paragraph, as having insufficient antecedent basis. The Examiner suggests amending the limitation to

"said respective code." Applicant wishes to thank the Examiner for the suggestion. The Applicant has amended claim 12 accordingly. In view of the above, Applicants believe claim 12 is now in condition for allowance. Early allowance of the claim 12 is respectfully requested.

Claim Rejection Under 35 U.S.C. § 102(e)

Claims 1-5, 7-10, and 12-20 are rejected under 35 U.S.C. § 102(e) as being anticipated by Behrens. The Applicants respectfully traverse this rejection because Behrens does not disclose each and every element of claims 1-5, 7-10, and 12-20.

"[A]nticipation requires that all of the elements and limitations of the claim are found within a single prior art reference. . . . There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." *Scripps Clinic & Research Foundation v. Genentech Inc.*, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991). Thus, in order for the prior art to anticipate the claimed invention, all of the elements and limitations of the claim must be disclosed in the prior art.

The Behrens reference does not disclose each element of the present invention as claimed in independent claims 1, 7, 12, 17, 18 and 19. For example, the present invention as recited in the independent claims provides apparatus and methods in which the same grouping of markings provides both a human-readable form and a machine readable form. This arrangement is directly at variance with Behrens, which discloses and teaches the need for separate and distinct sets of human readable and machine readable markings. In the present invention as recited in the claims, a string of alpha-numerical characters is printed in a two-dimensional redundant pattern which is also readable by a imager and a computer. In other words, two-dimensional pattern is presented in such a way that the pattern can be simultaneously read by both humans and machines. Support for this argument can be found, for example, on page 2, paragraph 7, and page 3, paragraph 9. In addition, the present invention claims producing a part marking with multiple machine detectable marks arranged with two dimensional bit patterns, with at least one mark having an appearance to human vision resembling at least one

character, the two-dimensional redundant bit patterns comprise repeating patterns of a bit string forming a machine readable code corresponding to at least one character. Redundancy in the bit patterns ensures that if some portion of the 2D pattern is lost, the pattern may be still reconstructed.

Behrens, by contrast, neither discloses nor teaches the present invention, and indeed teaches away from the present invention. It is well established law that "[a] reference [is] said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 31 U.S.P.Q.2d 1130, 1131 (Fed. Cir. 1994).

Behrens teaches a method for recording data on a photographic film. Data regarding the photo, such as speed of vehicles photographed, is recorded in human readable format such as letters and numbers. In addition, the same data are also recorded in a second format, which is readable by a computer or a machine. Behrens discloses that all data are applied in these two different formats; at no time does Behrens disclose or suggest that a single format for data recordation be used that is simultaneously human readable and machine readable. Indeed, Behrens teaches away from the present invention in that Behrens specifically argues that two formats should be used so that they can be compared so as to reduce the potential for errors while reading the data (see Behrens, column 2, lines 10-25, column 5, lines 30 -65).

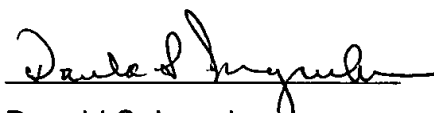
Further, nowhere does Behrens teach suggest or disclose a method to encode a bit string into a repeating two-dimensional (2D) bit patterns which is simultaneously readable by both humans and machines as recited in Applicants claimed invention. Behrens invention makes use of recording data in two separate formats - the human readable format and the machine-readable format (column 4, lines 13-52). Nowhere does Behrens teach, suggest a or disclose using a multiple marks arranged in two dimensional bit patterns, with at least one mark having an appearance to human vision resembling at one character, the two-dimensional redundant bit patterns comprise repeating patterns of a bit string forming a machine readable code corresponding to at least one character.

Therefore, the present invention as claimed in Applicant's independent claims 1, 7, 12, 17, 18 and 19 are not anticipated by Behrens. Claims 2-5 depend directly

or indirectly from claim 1, claims 8-10 depend directly from claim 17, claims 13-16 depend directly from claim 12, claim 20 depends from claim 19. Accordingly, Applicants submit that claims 2-5, 8-10, 13-16 and 20 are allowable by dependency. Thus, it is respectfully requested that the rejection of Claims 1-5, 7-10, 12-20 under 35 USC §102 (e) be withdrawn.

In view of the above, it is submitted that the claims are patentable and in condition for allowance. Reconsideration of the rejection is requested. Allowance of claims at an early date is solicited.

Respectfully submitted,



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ATTACHMENT

VERSION OF CLAIMS WITH MARKINGS TO SHOW CHANGES MADE

12. (Twice amended) A system for automatic identification of a part, comprising:

a part comprising a plurality of respective multiplicities of machine-detectable marks arranged in accordance with two-dimensional redundant bit patterns, each of said respective multiplicities of machine-detectable marks having an appearance to human vision resembling a respective character, and said two-dimensional redundant bit patterns comprising a repeating pattern of a bit string forming respective codes corresponding to said respective character;

an imager for imaging an area of said part occupied by said marks to produce electrical signals having characteristics which allow discrimination between electrical signals derived from imaging of marks and electrical signals derived from imaging of areas outside of marks; and

a computer programmed to derive [first and second] said codes from said electrical signals output by said imager.